

**WHAT IS CLAIMED IS**

1. An composition comprising:
  - (1) a biocompatible polymer insoluble in blood or other body fluid,
  - (2) a biocompatible solvent that is capable of solubilizing the biocompatible polymer and is miscible in blood or other body fluid,
  - (3) a biocompatible contrast agent, and
  - (4) a sufficient amount of fumed silica to act as a rheological modifier in the composition and to impart a shear thinning index to the composition, measured at shear rates of  $1\text{ s}^{-1}$  and  $10\text{ s}^{-1}$  at  $37^{\circ}\text{C}$ , of at least about 4.
2. The composition according to Claim 1 having a high viscosity at low shear conditions as defined by a viscosity of greater than about 25,000 cP at  $37^{\circ}\text{C}$  at a shear rate of  $0.24\text{ s}^{-1}$  and a viscosity of less than about 5000 cP at  $37^{\circ}\text{C}$  when a shear rate of at least about  $100\text{ s}^{-1}$  is applied.
3. The composition according to Claim 1 having an intermediate viscosity at low shear conditions as defined by a viscosity of greater than about 4,000 cP at  $37^{\circ}\text{C}$  at a shear rate of  $0.24\text{ s}^{-1}$  and a viscosity of less than about 2000 cP at  $37^{\circ}\text{C}$  when a shear rate of at least about  $100\text{ s}^{-1}$  is applied.
4. The composition according to Claim 2 or 3, wherein said composition is an embolic composition used to embolize a vascular site for treatment of one or more of an aneurysm, arteriovenous fistulae, and uncontrolled bleeding.

5. The composition according to Claim 2, wherein the biocompatible polymer and fumed silica are present in the composition in a ratio of from about 2.6 to 1 to about 3.6 to 1 on a weight of polymer per volume of solution to weight of silica per total weight basis.

6. The composition according to Claim 5 wherein said ratio is from about 3.0 to 1 to about 3.2 to 1.

7. The composition according to Claim 5, wherein said ratio is about 3.1 to 1.

8. The composition of Claim 1 having a low viscosity at low shear conditions as defined by a viscosity of greater than about 2,000 cP at 37°C at a shear rate of 0.24 s<sup>-1</sup> and a viscosity of less than about 500 cP at 37°C when a shear rate of at least about 100 s<sup>-1</sup> is applied.

9. The composition as in Claim 8, wherein said composition is an embolic composition used to embolize a vascular site for the treatment of one or more of arteriovenous malformations, tumors, and uncontrolled bleeding.

10. The composition according to Claim 1, wherein the biocompatible polymer is selected from the group consisting of cellulose acetate butyrate, cellulose diacetate, polymethyl methacrylate, polyvinyl acetate, copolymers of urethane and acrylates, ethylene vinyl alcohol, and mixtures thereof.

11. The composition according to Claim 10, wherein the biocompatible polymer is ethylene vinyl alcohol.

12. The composition according to Claim 1, wherein the biocompatible solvent is selected from the group consisting of ethyl alcohol, ethyl lactate, acetone, dimethylsulfoxide, and mixtures thereof.

13. The composition according to Claim 12, wherein the biocompatible solvent is dimethylsulfoxide.
14. The composition according to Claim 1, wherein the biocompatible contrast agent is selected from the group consisting of tantalum, tantalum oxide, tungsten, barium sulfate, and mixtures thereof.
15. The composition according to Claim 14, wherein the contrast agent is tantalum.
16. The composition according to Claim 1, wherein the composition further comprises a bridging molecule.
17. The composition according to Claim 12, wherein the bridging molecule is a glycol.
18. The composition according to Claim 1, wherein the composition further comprises a surfactant.
19. The composition according to Claim 1, wherein the biocompatible polymer is ethylene vinyl alcohol, the biocompatible solvent is dimethylsulfoxide, and the biocompatible contrast agent is tantalum.
20. The composition according to Claim 19, wherein the ethylene vinyl alcohol and fumed silica are present in the composition in a ratio of 3.1 to 1 on a weight of polymer per volume of solution to weight of silica per total weight basis.
21. A composition suitable for vascular embolization comprising:  
ethylene vinyl alcohol 3-9 % weight

tantalum contrast agent 37-40 % weight  
DMSO solvent and  
fumed silica in an amount to impart a shear thinning index to the composition  
measured at  $1 \text{ s}^{-1}$  and  $10 \text{ s}^{-1}$  at  $37^{\circ}\text{C}$ , of 4.0 to 6.5.

22. The composition according to Claim 21 comprising ethylene vinyl alcohol about 8.2 % weight, tantalum about 38 % weight and fumed silica about 6.2 % in DMSO solvent.

23. A method for embolizing a vascular site in a mammal comprising:  
delivering via a catheter into the vascular site a composition according to Claim 1 under conditions wherein the composition forms a precipitate in the vascular site which precipitate embolizes the vascular site.

24. A method for embolizing a vascular site in a mammal comprising:  
delivering via a catheter into the vascular site a high viscosity composition according to Claim 2 under conditions wherein the composition forms a precipitate in the vascular site which precipitate embolizes the vascular site.

25. The method according to Claim 24, wherein said vascular site is in need of embolization due to one or more of an aneurysm, arteriovenous fistulae, and uncontrolled bleeding.

26. A method for embolizing a vascular site in a mammal comprising:  
delivering via a catheter into the vascular site an intermediate viscosity composition according to Claim 3 under conditions wherein the composition forms a precipitate in the vascular site which precipitate embolizes the vascular site.

27. The method according to Claim 26, wherein said vascular site is in need of embolization due to one or more of an aneurysm, arteriovenous fistulae, and uncontrolled bleeding.

28. A method for embolizing a vascular site in a mammal comprising:  
delivering via a catheter into the vascular site a low viscosity composition according to Claim 8 under conditions wherein the composition forms a precipitate in the vascular site which precipitate embolizes the vascular site.

29. The method according to Claim 28 wherein the vascular site is in need of embolization due to one or more of arteriovenous malformations, tumors, and uncontrolled bleeding.

30. A kit of parts suitable for use in embolizing a selected vascular site comprising:  
a composition of Claim 1 and  
a catheter sized and selected to be compatible with the selected vascular site.

31. The kit according to Claim 30, wherein the catheter is a microcatheter.

32. The kit according to Claim 31, wherein the catheter is suitable for use with a guidewire.

33. The kit according to Claim 30, further including a syringe for feeding the composition of claim 1 to the catheter.

34. The kit according to Claim 30, further included a vascular prosthesis.

35. The kit according to Claim 34, wherein said vascular prosthesis is an endovascular prosthesis.
36. The kit according to Claim 30, further including a quantity of a non-particulate agent.
37. The kit according to Claim 36, wherein said non-particulate agent is one or more coils.
38. The kit according to Claim 30, further including directions for use relating to a treatment procedure.
39. The kit according to Claim 38, wherein said treatment procedure comprises embolization of a blood vessel for treating one or more aneurysms or arteriovenous fistulae.
40. The kit according to Claim 39, wherein the treatment procedure includes attaching a prosthesis to a blood vessel.